

**Applicant: Falke et al.**  
**Serial No.: 10/046,808**  
**Group Art Unit: 1711**

**REMARKS**

Claims 1-3, 6-14, and 16 remain in the application with claim 1 in independent form. Claims 4 and 5 have been cancelled. Claims 1 and 12 have been amended. There is full support in the specification as originally filed for the amendments to Claims 1 and 12. Thus, Applicant believes no new matter has been introduced through these amendments.

Claims 1-14 and 16 stand rejected under 35 U.S.C. §102(b) as being anticipated by Lamberts et al. (United States Patent No. 5,428,077). The Examiner contends that Lamberts et al. discloses preparations of polyurethane foams by combining isocyanates and polyol compositions as defined by Applicant's claims.

Lamberts et al. discloses a rigid polyurethane foam formed from a specified polyether-polyol mixture (*see Col. 1, lines 50-60.*) The polyether-polyol mixture (2) comprises two components (2a) and (2b). The first component (2a) includes one or more nitrogen-free polyethers having at least two hydrogen atoms active towards isocyanates and which contains oxyethylene residue. The first component (2a) is used in an amount of from 5 to 50% by weight of the polyether mixture (2) and has a functionality of at most 4 (*see Col. 2, lines 10-43.*) The oxyethylene residues included in the first component (2a) are formed by the addition of ethylene oxide (EO) (*see Col. 3, lines 51-55.*)

The second component (2b) includes one or more polyethers having at least two hydrogen atoms active towards isocyanates and which are free of oxyethylene groups. The

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second component (2b) is used in an amount of from 50 to 95% by weight of the polyether mixture (2) and has a functionality of at least 4 (*see Col. 2, lines 10-43.*)

For a rejection under 35 U.S.C. §102, the claims must be anticipated by the reference. In other words, the reference must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present. The subject application claims a process for the preparation of low-odor *flexible* polyurethane foams. Flexible polyurethane foams are understood by those skilled in the art to have an open-celled structure (*see page 16, line32-33 of the specification as originally submitted*), whereas as a *rigid* foam does not have an open-celled structure. Lamberts et al. discloses the formation of a *rigid* polyurethane foam and does not teach preparation of a *flexible* polyurethane foam. Therefore, the limitation of the foam being flexible is not explicitly or impliedly disclosed or taught in Lamberts et al.

The subject application further claims the step of reacting organic and/or modified organic polyisocyanates (a) with a polyetherol mixture (b). The polyetherol mixture includes a first component (b1) and a second component (b2). The first component (b1) includes at least one difunctional to octafunctional polyetherol based on ethylene oxide and, optionally, based on propylene oxide and/or butylene oxide. The polyetherol (b1) has an ethylene oxide content of at least 30% by weight, based on the total amount of alkylene oxide used in the polyetherol (b1) and has an OH number of from 20 to 200 mg KOH/g. Claim 1 has been amended to claim that

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the polyetherol (b1) is used in an amount of at least 50% by weight, based on the total weight of the polyetherol mixture (b).

Further, the second component (b2), according to the subject invention, includes at least one polyetherol based on propylene oxide and/or butylene oxide and having an OH number greater than 20 mg KOH/g. Claim 1 has been further amended to claim that the polyetherol (b2) is used in an amount of less than 30% by weight, based on the total weight of the polyetherol mixture (b).

Referring more specifically to the Examples of Lamberts et al., it is apparent that the mixtures of polyetherol of Lamberts et al. do not disclose, teach, or suggest the invention as now claimed in amended independent claim 1. More specifically, referring to Example 1 of Lamberts et al., this Example includes a polyol specifically defined as "a glycerol/ethylene oxide polyetherpolyol of hydroxyl number 450". In this Example, since this particular polyetherpolyol is the only polyol that has an EO content of *presumably* more than 30% by weight (in fact, the only polyol that has any EO content whatsoever), this polyetherpolyol may be assimilated to polyetherol (b1) of amended claim 1. This polyetherpolyol is present at only 30 % by weight based on the total weight of polyetherol mixture. Thus, Example 1 does not disclose, teach, or suggest a polyetherol such as polyetherol (b1) of amended claim 1 in an amount of more than 50 % by weight based on the total weight of polyetherol mixture.

Referring to Example 3 of Lamberts et al., this Example includes a polyol specifically defined as "pentaerythritol/ethylene oxide polyether-polyol of hydroxyl number 500". In this

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Example, since this particular polyetherpolyol is the only polyol that has an EO content of *presumably* more than 30% by weight (in fact, the only polyol that has any EO content whatsoever), this polyetherpolyol may be assimilated to polyetherol (b1) of amended claim 1. This polyetherpolyol is present at only 30 % by weight based on the total weight of polyetherol mixture. Thus, Example 3 does not disclose, teach, or suggest a polyetherol such as polyetherol (b1) of amended claim 1 in an amount of more than 50 % by weight based on the total weight of polyetherol mixture.

Finally, referring Example 4 of Lamberts et al., this Example includes a polyol specifically defined as “pentaerythritol/ethylene oxide polyether-polyol of hydroxyl number 500”...which is presumably the same polyol as in Example 3. In Example 4, since this particular polyetherpolyol is the only polyol that has an EO content of *presumably* more than 30% by weight (in fact, the only polyol that has any EO content whatsoever), this polyetherpolyol may be assimilated to polyetherol (b1) of amended claim 1. This polyetherpolyol is present at only 30 % by weight based on the total weight of polyetherol mixture. Thus, Example 4 does not disclose, teach, or suggest a polyetherol such as polyetherol (b1) of amended claim 1 in an amount of more than 50 % by weight based on the total weight of polyetherol mixture.

Referring to the specification as originally submitted, it has been surprisingly found that the resultant flexible polyurethane foam has reduced odor, in spite of the high proportions of ethylene oxide rich polyether that was used in the formation of the foam (*see page 3, lines 14-18*

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*and page 4, lines 22-34).* The novel combination of the polyetherol mixture (b) and the at least one catalyst (e) results in the flexible polyurethane foam having the low odor as illustrated in the Example section of the originally filed application. The reduced odor in conjunction with the flexibility of the polyurethane foam results in more practical uses for flexible polyurethane foams (*see page 15, lines 36-46.*) Lamberts et al. does not disclose forming a low-odor polyurethane foam from such a catalyst and any §103 rejections are also overcome due to there being no teaching or suggestions of such results based on the claimed weight percents of the polyetherols in the mixture. Therefore, it is believed that the 35 U.S.C. §102 rejection is overcome. Further, it is believed that claim 1 and claims 2, 3, 6-14, and 16, which depend directly or indirectly from claim 1, are non-obvious, and thus allowable.

Furthermore, claims 1-14 and 16 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 and 12-14 of copending Application No. 10/242,741 (the ‘741 application). The claims of the ‘741 application are directed toward a process for the preparation of *rigid* polyurethane foams from a polyetherol mixture. The claims of the subject application, as amended, are directed toward a process for the preparation of low-odor *flexible* polyurethane foams from a polyetherol mixture having at least 50 % by weight of a polyetherol (b1) based on the total weight of the polyetherol mixture and having at most 30% by weight of a polyetherol (b2) based on the total weight of the polyetherol mixture. Applicant believes that the obviousness-type double patenting rejection is

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moot. However, if the Examiner determines that such a rejection should be maintained, a terminal disclaimer will be prepared to overcome the rejection.

Accordingly, it is respectfully submitted that the Application, as amended, is now presented in condition for allowance, which allowance is respectfully solicited. Applicant believes that no fees are due, however, if any become required, the Commissioner is hereby authorized to charge any additional fees or credit any overpayments to Deposit Account 08-2789. Further and favorable reconsideration of the outstanding Office Action is hereby requested.

**Respectfully submitted,**

**HOWARD & HOWARD ATTORNEYS**

**March 9, 2004**  
**Date**

  
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**CERTIFICATE OF MAILING**

I hereby certify that this Amendment for United States Patent Application Serial Number **10/046,808** filed January 15, 2002 is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on **March 9, 2004**.

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